

# Electric Energy Efficiency

## What is Energy Efficiency?

Electric energy efficiency is a reduction in electric energy use, the use of the minimum amount of electricity necessary to accomplish a task, or the shifting of electric use away from periods of high demand. The most common methods of improving energy efficiency are conservation, load management, fuel switching, and customer-owned renewable resource technologies.

- Most customers are familiar with **conservation** techniques such as turning off lights when leaving a room or turning down furnace thermostats at night. Conservation also includes installing measures that allow the same task to be accomplished with a lesser amount of energy. For example, it takes less heat and air conditioning to stay warm or cool in a properly insulated home than in an uninsulated one. Another example is the use of compact fluorescent light bulbs rather than incandescent bulbs. These bulbs can provide the same amount of light as conventional incandescent light bulbs but only use one quarter the energy.
- **Load management** shifts energy use away from periods when demands are the highest. Daily demand for energy reaches its highest point on hot summer weekdays, when air cooling systems in homes and at commercial and industrial facilities. Examples of major forms of load management are: air conditioner control or cycling; interruptible industrial service; and cool storage systems. In load management programs, customers generally receive a bill credit, a lower rate, or some other kind of incentive to participate.
- **Fuel substitution** replaces electricity with a more efficient, cheaper source of fuel (generally natural gas) for certain uses of electricity. Fuel substitution reduces use of electricity and can usually reduce total energy use. For instance, natural gas water heaters generally use less total energy than their electric counterparts.
- **Customer-owned renewable resources** replace electricity use with small-scale customer-sited, renewable resource technologies. These technologies reduce use of fossil energy and may also reduce peak demand for electricity. Examples of major types of customer-owned renewable resources are: solar electric, which converts sunlight to electricity; daylighting uses building design to reduce use of electric lights and air conditioning; solar water heaters; wind; wood or biomass.

## Why should consumers be concerned about the efficient use of electricity?

There are two primary ways of responding to a growing need for energy: increase the energy supply or use energy efficiency to reduce the demand. The efficient use of electricity has several advantages. Cost-effective energy efficiency helps keep utility bills low, preserves the environment, and benefits the state's economy.

Utilities must supply power to meet the demand for electricity. As the demand for electricity increases, more power plants and lines must be built and operated, adding to the cost of meeting energy needs. These costs must be paid by the utilities' customers: individuals, employers, and manufacturers of Wisconsin. Cost-effective energy efficiency reduces utility bills by avoiding many of these costs.

Energy efficiency usually does much less damage to the environment than increasing the supply of energy. Energy conservation reduces the amount of fuel burned. This reduces many negative impacts:

air pollution, water use and pollution, coal and uranium mining, disposal of radioactive waste, the production of green house gases, and the depletion of non-renewable resources. Energy conservation, fuel switching, and load management all reduce the number of power plants and power lines and the associated impacts on the environment. These impacts include: use of valuable land, destruction of natural habitats, and aesthetic impacts.

Cost-effective energy efficiency also contributes to a better economy for the state and the nation. Energy efficiency makes business customers more competitive. For the state, reducing energy dependence is important because every dollar spent on coal, uranium, and natural gas leaves Wisconsin and our economy. For the nation, it's important because energy saved makes us less dependent on foreign sources, which improves our balance of trade and our economy.

### **What can residential customers do to become more energy efficient?**

The following no or low cost actions will help you use electric energy more efficiently in your home.

- Clean or replace your air conditioner filter. Turn the air conditioner off when not at home. Close shades and curtains on sunny summer days to keep the heat out.
- Run your dishwasher early in the morning or late in the evening and only when full.
- Wash clothes early in the morning or late in the evening and dry them on a clothesline.
- Turn lights off when you leave a room.
- Minimize the amount of time your refrigerator and freezer doors are open.
- Turn home computers and TVs off when not in use.

The following actions are also excellent ways to reduce energy use and save you money. However, they will require some expenditures.

- Replace incandescent bulbs with compact fluorescent bulbs where bulbs are on a lot of the time.
- Replace older, inefficient appliances, such as refrigerators and air conditioners, with newer, more efficient models.
- Caulk and weatherstrip.
- Add insulation to your roof, if needed.
- Plant shade trees close to the house on the south and west sides.

### **Who can I contact for more information on energy savings actions?**

A good source of information regarding energy savings measures is [www.focusonenergy.com](http://www.focusonenergy.com). Focus on Energy is a public-private partnership offering energy efficiency information and services. The Focus on Energy website provides information on cost-effective energy saving technologies. It also provides information on assistance that may be available to purchase and install the energy savings measures. Focus on Energy can also be contacted at (800) 762-7077.

### **PSC Overview Series**

The PSC has prepared other pamphlets for important electric issues that can be viewed on the PSC website: <http://psc.wi.gov>.

- Common Power Plant Siting Criteria
- Electric Energy Efficiency
- Electric Power Plants
- Electric Transmission Lines
- EMF - Electric & Magnetic Fields

- Nuclear Power Plant Decommissioning and Radioactive Waste Disposal
- Power Plants Approval Process
- Public Hearing Guide, Electric Construction Projects
- Renewable Energy Resources
- Right-of-Way and Easement in Electric Facility Construction
- Transmission Line Approval Process
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## **Contact for further information:**

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